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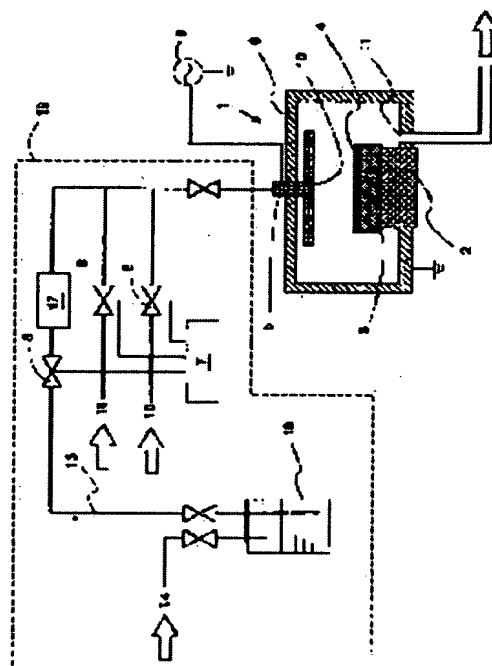
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(54) SILICONE POLYMER INSULATION FILM ON SEMICONDUCTOR SUBSTRATE AND METHOD FOR FORMATION THEREOF

(57)Abstract:

PROBLEM TO BE SOLVED: To manufacture an insulation film having a high reliability and a high low dielectric constant.
SOLUTION: The method for forming a silicone polymer insulation film having a low relative dielectric constant, a high heat resistance and a moisture absorption resistance is applied to a plasma CVD apparatus. At a first stage, a silicon-containing hydrocarbon compound expressed by a general formula of $\text{Si}_\alpha\text{O}_\beta\text{C}_x\text{H}_y$ (where α , β , x and y are integers) is introduced into a reaction chamber 6 of the plasma CVD apparatus. The silicon-containing hydrocarbon compound has at most two O-CnH_{2n+1} bonds and at least two hydrocarbon radicals bonded to the silicon. The residence time of the material gas is lengthened by, for example, reducing the total flow of the reaction gas, in such a way as to form a silicone polymer film having a micropore porous structure with a low dielectric constant.



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